

Table S1. Criteria of classification for ultrasonic vocalization patterns.

Category name	Criteria
Short	< 5 ms
Flat	Max Peak–Min Peak < 6.25 kHz
Upward	End–Start ≥ 6.25 kHz, End–Start \geq Max Peak–End
Downward	Start–End ≥ 6.25 kHz, Start–End \geq Min–End
A-type	$ \text{Start–End} < 6.25$ kHz, Max–Start ≥ 6.25 kHz, End–Start $<$ Max–End
U-type	$ \text{Start–End} < 6.25$ kHz, Start–Min ≥ 6.25 kHz, Start–End $<$ Min–End
Complex	Two or more directional changes, each ≥ 6.25 kHz
Jump	More than one jump
Harmonic	More than two parallel horizontal lines in the spectrogram

|| indicate absolute value.